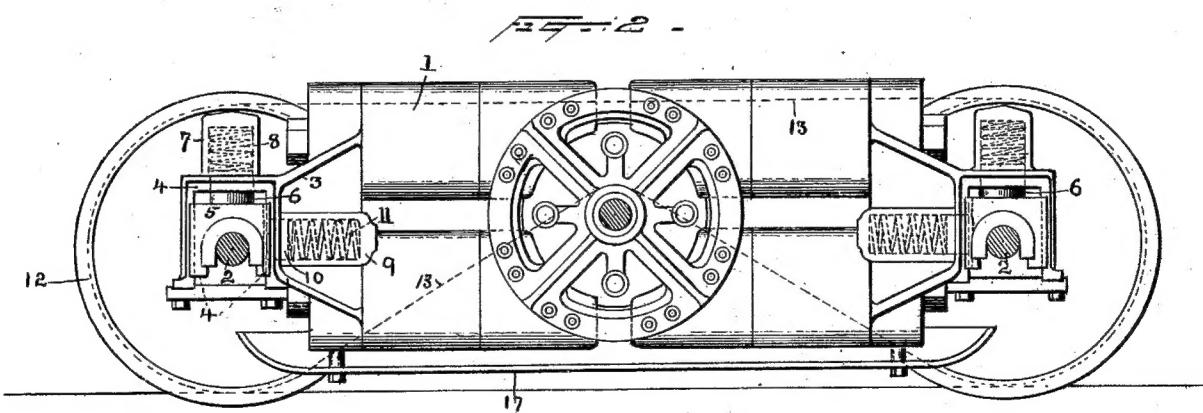
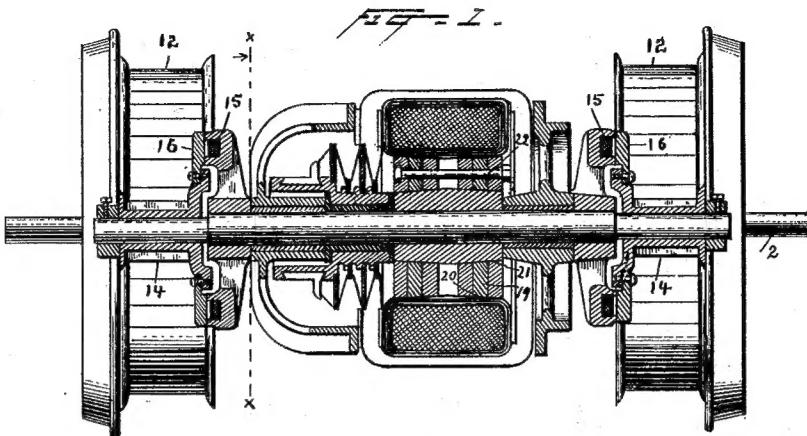


(No Model.)

T. A. EDISON,  
ELECTRIC LOCOMOTIVE.

No. 476,987.  
Patented June 14, 1892.



Witnesses

Morris A. Blank,  
Dr. G. W. Oberle.

Inventor

T. A. Edison.  
By his attorney  
F. S. Dwyer.

# UNITED STATES PATENT OFFICE.

THOMAS A. EDISON, OF LLEWELLYN PARK, NEW JERSEY.

## ELECTRIC LOCOMOTIVE.

SPECIFICATION forming part of Letters Patent No. 476,987, dated June 14, 1892.

Application filed March 2, 1891. Serial No. 383,375. (No model.)

To all whom it may concern:

Be it known that I, THOMAS A. EDISON, a citizen of the United States, residing at Llewellyn Park, in the county of Essex and State of New Jersey, have invented a certain new and useful Improvement in Electrically-Propelled Vehicles, (Case No. 910,) of which the following is a specification.

The present invention relates especially to the manner in which the propelling-motor of an electric car is mounted on the truck and to the means by which motion is transferred from the motor to the car-axles.

The main object of the invention is to support the motor directly from the car-axles in such manner that the axles may be capable of moving slightly relative to the motor, as hereinafter described, and in such manner that power may be transferred readily from the motor to the axles.

In the accompanying drawings, Figure 1 is a central section through an electric motor mounted on a car-truck, and Fig. 2 is a section on line  $x-x$  of Fig. 1.

1 is an electric motor supported between the two axles 2 of the car or truck. The motor is supported directly on the axles instead of being mounted on the frame of a truck, and this support is effected by providing one or more brackets 3, having at their outer ends boxes or sockets 4, in which are movable spring-pressed blocks 5, resting on the axles. The blocks can move vertically or horizontally in their boxes. From the upper side of each block projects an extension 6 into a holder 7, forming a part of or secured to the box 4. Within said holder is a spring 8 of sufficient strength to support its proportion of the weight of the motor, but capable of slight compression when the truck is subjected to sudden jars. There are preferably two of these blocks 5 at each end of the motor.

9 is a second socket or holder on the face of the box toward the motor. Within this holder is a freely-movable block 10, which is pressed against the block 5 by the spring 11. Said arrangement of the block 10 will permit the necessary vertical movement of block 5. The springs 11 should be of sufficient strength to withstand the pull of the motor communicated through a belt or otherwise to the car-

axle, but should be capable of yielding slightly under any unusual or severe strain.

12 are pulleys on the car-axles.

13 is a belt, preferably a chain belt, constructed and arranged as described in my application, Serial No. 383,374, filed March 2, 1891. Said chain passes around a pulley on the front axle and a pulley on the rear axle and is engaged by the cog-wheel or drum 14 on the motor-shaft. Two such chains are used, one on each side of the car. Motion is transmitted from the motor to the cog-wheel by means of a magnetic clutch consisting of one member 15, fixed to the motor-shaft, and a second member 16, fixed to the cog-wheel and capable of turning therewith.

17 is a pan or plate under the motor to protect it from dirt. On the car-axles outside of the wheels are or may be placed the usual boxes or devices for supporting the car-body, the boxes for supporting the motor being between the wheels.

With the arrangement described when the motor is set in motion and the magnetic clutch is energized motion is conveyed to the chain belt and thence to the pulleys on the car-axles. The pull of the belts tends to draw the axles toward the motor, but owing to the strength of the springs said axles are not moved appreciably; but when for any reason an unusually severe strain or pull is given the springs, or some of them, yield, allowing the block or blocks 5 to move in their boxes, thus avoiding injury to the chain or other parts. When the motor is mounted as described, it also allows the axles to move slightly independently of each other, as is desirable and necessary when the vehicle is rounding a curve. The motor ring-armature is slightly thicker at the center 18 than at the edges, so that the inner face has an inclination from the central line toward both edges, and the blocks or rings 19, which are placed around the hub on the motor-shaft, have their outer sides or peripheries 20, as well as their inner sides 21, beveled, so that said blocks or rings when drawn together by bolts 22 are securely wedged between the hub and armature-ring and firmly hold the latter in place.

Having thus described the invention, what I claim is—

1. The combination of a motor, a shaft or axle, a movable block and a spring supporting the motor, and a second spring acting on the block in a direction substantially opposite to the strain of the motor and having strength sufficient to withstand the pull of the motor, substantially as described.
2. The combination of a shaft or axle, a block resting thereon and having an exten-

sion, a box for the block, having a holder, and a spring in said holder and pressing against said extension, substantially as described.

This specification signed and witnessed this 24th day of February, 1891.

THOS. A. EDISON.

Witnesses:

CHARLES M. CATLIN,  
JOHN F. RANDOLPH.